March 16, 1995

Mr. Lyle Hoag
California Urban Water Agencies
455 Capitol Mall, Suite 705
Sacramento, California 95814

Dear Mr. Hoag:

This is in belated response to your request to complete the interview summary for the California Urban Water Agencies Ecosystem Management Project. Just to make things even more complicated, I have elected not to fill out the questionnaire. I do sort of follow the sequence in the survey.

First a definition of ecosystem. As you know ecosystem is short for ecological system and thus means something like "the interrelationship between organisms and their environment." Generally, one needs to provide an arbitrary geographic or biological boundaries to the system, although in reality the earth can be considered one large ecosystem.

Ecosystem management is an oxymoron. To paraphrase an expression by a famous scientist, an ecosystem is not only more complex than we understand, it is more complex than we can understand. Given this complexity, it is inconceivable that we can manage it. Comprehensive ecosystem management not only is an oxymoron, but with redundancy. If we could manage it, by necessity this management would be comprehensive.

Aside from technical and philosophical concerns, ecosystem management has taken on a meaning of its own in the bureaucracy of State, federal and local governments as well as in numerous organizations. I believe the proponents of ecosystem management really mean system management: a management strategy which is in contrast to what has often in the past been single species management.

Probably the most cited example of the new paradigm of ecosystem management involves our national forests, which are (or may be) evolving from timber harvest management of one which emphasizes the need to protect a variety of habitats and organisms which use these lands. (Much of the impetus for systems management is derived from Aldo Leopold's observations in the 1930s that Germany's focus on single species stands of timber resulted in extremely impoverished biological communities.) Management of Central Valley salmonid stocks would logically fit

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into the new concept of ecosystem management if we were to include the watershed, the estuary and the ocean in the system to be managed in some holistic fashion.

As far as I know, the Department of Water Resources does not have an ecosystem managmement plan for all or portions of the Sacramento-San Joaquin watershed. The closest we may come is through the SB 1086 program designed primarily for anadromous fish and riparian habitat and the San Joaquin River Management Plan. Although not a specific DWR activity implementation of the Central Valley Improvement Act, it also should be included on this short list.

The three above examples are multiagency efforts which have goals embracing many of those commonly cited by proponents of ecosystem management. These programs include the usual lists of State, federal and local representatives. The SB 1086 and San Joaquin River Management programs are dependent on vague funding sources and thus it is presently not possible to define an implementation schedule. The CVPIA may have more assurred funding but its implementation is mandatory only in those streams controlled by the Central Valley Project. To fully implement the fish doubling aspects of the CVPIA will require the cooperation of many water districts, local governments and organizations as well as several State and federal government agencies.

Before examining the questions about the appropriateness of ecosystem management for the estuary or the watershed, it may help to lay out a few of the necessary components that I believe should be embodied in the term.

- We must recognize that an ecosystem is dynamic and any comprehensive management strategy will allow for an ever-changing system. Managers often tend to want to enforce an unnatural stability to natural systems such as exemplified in Germany's single species tree farms planted to replace harvested natural forests.

- As mentioned earlier, ecosystems are complex. We must learn to live with this truism and accept the fact that management strategies may not work as planned because we don't have clear understanding of all (any of) the cause and effect relationships.

- We need to set clear goals and objectives. To the extent possible these goals and objectives should be societal not those of special interest groups. This is the key element in this approach and will require that all interest groups participate in their development.

Of necessity, the goals and objectives will be biased towards our 1995 human values and as such must be periodically examined as times, and people, change. Although it is intellectually interesting to think about ecosystems, most people tend to focus of those parts of the system of particular benefit to them. The goals and objectives will properly include a limitation on the parts of the ecosystem to be managed. (For example they will include something about several fish species of concern.) In the broader ecological context the goals and objectives should include some basic habitat considerations.

- Once the goals and objectives have been set, the next task is to develop a program to determine if they have been achieved. This program will include some basic monitoring and special studies to shed more insight into cause and effect. Much of this may already be underway but additional efforts will probably be required. It would be wonderful if we could all agree on a few measures of "ecosystem health."

Could or should these efforts be legislated and by whom is a difficult question. My general reaction is that we would be more likely to pull off a more system oriented management approach through a cooperative program. As we work through the process, the need for specific legislation will probably become apparent and should be pursued. Offhand I can't think of anyone that should not be a part of the process. On the other hand, this will work only if the "steering committee" is kept reasonably small. Since water will be one of the key issues, CUWA/Ag and/or ACWA are essential participants.

I would tend towards a watershed approach rather than limiting it to the estuary and would also include the coastal ocean in the scope. This wide geographic definition adds to the complexity but is essential if we are serious about taking a system approach.

I don't believe it to be appropriate at this time to suggest actions that might be taken in the estuary or the watershed. The first requirement is to define goals and objectives through some consensus process. These discussions would probably lead to increased understanding of the system and a monitoring program. The discussions should yield consensus on measures to be put in place as soon as possible.

It appears that a workshop is the logical starting point for this process and the Department is willing to participate. You might want to appoint a workshop steering committee to develop a draft agenda and suggest invitees. We would also be available to be part of the steering committee. Our participation after the

workshop will depend on how well the proposal seems to be coming together and the expected probability of yielding tangible benefits.

I hope this provides some of the information you needed, albeit it is probably not exactly in the expected format. I realize you were frustrated during the recent interview you had with Bob Potter and staff on this topic. The frustration comes in part from trying to implement a concept originating from a buzzword. Until we can get more specific managers and scientists, we will continue to have different views on the usefullness of "comprehensive ecosystem management."

Let me know if you have any questions, (916) 227-7531. Although personal pronouns dominate the reply I believe the ideas and the committment are generally supported by DWR management.

Sincerely,

Randall L. Brown
Environmental Services Office

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